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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,635	07/22/2003	Chung-Lung Pai	MR2707-41	5181

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EXAMINER	
NGUYEN, MINH T	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,635	PAI, CHUNG-LUNG	
	Examiner	Art Unit	
	Minh Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-21* is/are rejected.

7)☒ Claim(s) *11 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it uses language which can be implied, i.e., "comprises". Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities: page 6, last line, "transistor 46" should be changed to -- resistor 46 --.

Appropriate correction is required.

Claim Objections

3. Claims 1, 12 and 17 are objected to because of the following informalities:

In claim 1, line 4, "a PTAT" should be changed to -- a first PTAT --, see line 3, claim 2.

In claim 12, line 5, "a PTAT" should be changed to -- a first PTAT --.

In claim 17, line 3, "the PTAT" should be changed to -- the first PTAT --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-10, 12-18 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,980,106, issued to Yamamoto et al.

As per claim 1, Yamamoto discloses a temperature detector circuit (Fig. 1A, the details shown in Fig. 4 minus the hysteresis section) for generating an output (at the output of inverter 30) when a target temperature is reached (Fig. 1B, the target is TD, this is the threshold point where the output of inverter 30 changes state), the temperature detector circuit comprising:

a first current source (10) for generating a PTAP current (column 5, see equation 1) which is a first reference current (I_th, Fig. 4) at a reference temperature (because any temperature lower than TD can be designated as reference temperature, it is logical to select the room temperature which is when the detector starts to operate as a reference temperature); and

a second current source (20) connected in series (as shown) to the first current source (10) through a node (A) and supplied with a temperature-independent reference voltage (the bandgap voltage VBG, column 5, line 53) for generating a second current (I_bg) proportional to the reference voltage (column 6, see equation 3), which is a second reference current at the reference temperature;

wherein the first and second current sources are configured such that a ratio of the second reference current to the first reference current is proportional to a ratio of the target temperature to the reference temperature (see the description in columns 3-4 regarding equations 1-3, i.e., the relationship between resistors R2 and R4 versus I_th1 and I_bg1).

As per claim 2, the recited first current source reads on elements M1, M2 and Q2 which generates a second PTAT current (I_th1) which is used to derive the first PTAT current (I_th) through the current mirror structure (M1, M9).

As per claim 3, FETs M1 and M9 constitutes the recited current mirror.

As per claim 4, the recited transconductive amplifier reads on the current mirror (M6 and M7, i.e., the current at the drain of M7 is the mirrored and amplified version of the current I_bg1) which transforms the reference voltage V_bg to a third current (the current I_bg1) to derive the second current (I_bg).

As per claim 5, the recited current mirror reads on the current mirror (M17 and M18) which is mirroring the third current (I_bg1) to produce the second current (I_bg). The third current mirror I_bg1 is mirrored through the transconductive amplifier (M6 and M7, also a current mirror) and further mirrored through the current mirror (M17 and M18) to produce the second current (I_bg).

As per claim 6, the recited first resistor and second resistor read on resistors R2 and R4, respectively shown in Fig. 4. The recited ratio relationship is derived from equations 1-3 described in columns 5-6.

As per claim 7, the recited limitation is disclosed in column 6, line 39-40, i.e., "R2 and R4 have the same temperature coefficient".

As per claim 9, the recited limitation is merely an intended use of the detector circuit, i.e., intended to use in a room temperature. Because the Yamamoto can be used in a room temperature environment, and the reference voltage can be set to any temperature which includes room temperature, the recited limitation is met.

As per claim 10, the recited output stage reads on the inverter 30.

As per claim 12, this claim is merely a method to operate the circuit discussed in claim 1. Because Yamamoto teaches the circuit, the method to operate is inherently disclosed.

As per claims 13-18 and 20-21, these claims are rejected for the same reasons noted in claims 2-7 and 9-10, respectively.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,980,106, issued to Yamamoto et al.

As per claim 8, Yamamoto discloses the circuit as discussed in claim 6. He further explicitly discloses the first and second resistors having the same temperature coefficient (see claim 7).

Yamamoto does not explicitly disclose the first and second resistors are made of the same material as called for in the claim.

As known, it is much easier to select resistors having the same temperature coefficient when these resistors are made of the same material, i.e., just select two resistors made in the same lot.

It would have been obvious to one skilled in the art at the time of the invention was made to use the first and second resistors which are made of the same material in the Yamamoto circuit. The motivation would be to simplified the process of selecting the first and second resistors to have the same temperature coefficient.

As per claim 19, rejected for the same reason and motivation noted in claim 8.

Allowable Subject Matter

6. Claims 11 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 11 and 22 are allowable because the prior art of record fails to disclose or suggest the inclusion of an output stage which include a MOS, a capacitor and a buffer connected as recited in each of claims 11 and 22.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is **571-272-1748**. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/22/07

Minh Nguyen
Primary Examiner
Art Unit 2816